

KIRTLANDIA[®]

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PRESENTATION OF THE DAVID S. INGALLS, JR. AWARD FOR EXCELLENCE*

PRESENTATION OF THE AWARD

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Tonight we have gathered to pay tribute to Dr. Edward O. Wilson, the recipient of The Cleveland Museum of Natural History's David S. Ingalls, Jr. Award for Excellence. Just who is this man and why has he gained international prominence?

Dr. Wilson was born in Birmingham, Alabama. An only child in a family that moved frequently, Edward attended fourteen different public schools in eleven years. In his nomadic life, Nature became his most reliable companion. It was his delight to explore the woods and swamps along the Gulf Coast. Of this he later wrote, "The outdoors was the one part of my world I perceived to hold rock steady." Fortunately for the world of biology, his interest focused on insects. It was at the age of sixteen that his fascination for ants developed. He was determined to survey all of the ants in Alabama! As a dedicated student of nature, he was active in scouting and achieved Eagle Scout rank by the age of fifteen. Years later, his enthusiasm for scouting led him to include the Boy Scout Oath in *Naturalist* (1994), his autobiography.

Dr. Wilson graduated Phi Beta Kappa from the University of Alabama, and received his doctorate in biology from Harvard University. In addition to entomology,

he also studied population biology, ecology, and biogeography. Today he is Pellegrino University Professor, and Curator in Entomology at the Museum of Comparative Zoology, at Harvard University. His literary productivity is awesome. With extraordinary drive, he has produced nearly 350 scientific papers and at least twenty books. The stimulus to scientific thought caused by his book *Sociobiology: the New Synthesis* (1975), earned him the title "father of sociobiology." His application of that discipline to humans led to his Pulitzer Prize winning book, *On Human Nature* (1978), a fascinating view of the basis in biology for human behavior.

In 1986, he helped to convene leading researchers, naturalists, and conservationists to explore the nature of biodiversity, bringing this term into widespread popular usage. His book, *The Diversity of Life* (1992), became the "bible of the biosphere." One critic wrote, "It is written with a lucidness that borders on poetry." This book helped to focus public concern on the catastrophic loss of global biodiversity and the importance of conservation. With the late Robert MacArthur, Dr. Wilson formulated the theory of island biogeography, a theory which has had a tremendous impact on conservation practices.

*On May 9, 1995, the David S. Ingalls, Jr. Award for Excellence was presented to Edward O. Wilson. A slightly shortened version of Miriam Smead's speech on that occasion is printed here. Edward O. Wilson's remarks are excerpted from his acceptance speech.

Dr. Wilson is one of the world's most respected authorities on ants. Of this subject he has written copiously. His book *The Ants* (1990), written with Bert Hölldobler, won a Pulitzer prize.

He has been an active conservationist. With deep concern he promotes the conservation of endangered species. Dr. Wilson cautions, "The loss of species is the folly our descendants are least likely to forgive us." A compelling advocate for his beliefs, it is not enough for Dr. Wilson to merely write of these important concerns. He is a trustee of The Nature Conservancy and the American Museum of Natural History, and has chaired the National Research Council's Committee on Biodiversity. Because of his dedication to conservation, Dr. Wilson encourages young people to pursue careers as advocates for the environment. In honor of this commitment, there will be an E. O. Wilson summer intern in our Kirtlandia Society Adopt-A-Student program in 1996. It will be funded by the Museum's Natural Areas Endowment.

This distinguished international scholar, whom we honor tonight, is the quintessential field biologist in an age when much of academia has turned to molecular biology. Through his keen observations, astute evaluations, clarity of writing, and forcefulness of teaching, this scholar has led the contemporary scientific world, and those of us less scholarly, to a greater understanding of ourselves and of the evolutionary process.



Dr. Edward O. Wilson. Photograph by Jon Chase, Harvard News Office.

REPLY

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Mrs. Smead, Dr. Taylor, Mrs. Ingalls, Mary Lou Ferbert, other members of the Linnaean Society, members of the Museum staff, and students — I am overwhelmed. Thank you so much for this wonderful tribute. I am tempted to give a response that Salvador Dali gave. It was history's shortest speech. He said "I'll be so brief. I have already finished," and he sat down. But if you will be indulgent, I thought I might make a few remarks in minute recompense for the extraordinary honor of the Ingalls award and this warm reception that I have received here in Cleveland.

I want to say a few things about biodiversity, because it is to organizations like this one that we must look now increasingly for education, for research, and for progress in preserving this most important and irreplaceable part of the world heritage in order to pass it on to future generations.

We are in a period of slight environmental backlash in Washington, and in the beginning of what I call the backlash environmental literature, telling us that things aren't quite as bad as some of the environmentalists have been claiming, and pointing to the fact that there has been real progress in the United States in cleaning the air and restoring rivers and lakes. But, lest we become over-confident because of this local progress in the United States, I would remind you of the devastation of Eastern Europe and the Soviet Union and of the fact that the tropical countries of the world, where two-thirds of the people of the world live, and where far more than half of all the species of plants and animals live, is in severe decline in every respect. I think that very few of the anti-environmentalist critics will deny that fact. It does little to concentrate and to rest on limited success stories in this country. The devastation that is continuing to occur around the world with the exponential growth of human beings and the rising expectation of people everywhere in the world for higher energy and materials consumption has resulted in habitat destruction, and that in turn translates into mass extinction of species and races.

Roughly one hundred thousand species are known to be native to the United States. Some 1.5% of those species in the best known groups, such as birds, amphibians, and flowering plants, have become extinct. About 22% according to the data base of the Nature Conservancy, are endangered, threatened or rare.

Ten years ago I estimated that worldwide about 1.4 million species have been described and given a scientific name. Other estimates since that time have raised the number of species known to science to be about somewhere between 1.5 and 1.8 million. The important point here is that nobody knows exactly how many species have been given a scientific name. And we certainly don't know how many species there are in the world, because so little has been done of research of the kind at which The Cleveland Museum of Natural History excels. This museum represents one of a very small number of institutions capable of doing this kind of research and making the results known to the public as part of a sustained, educational enterprise. Let me add my appreciation of the Natural Areas program of the Museum, something that has been conducted in concert with efforts of the Nature Conservancy and which is devoted to identifying, helping to set aside, and then studying on a long-term basis the remaining natural areas of Ohio.

The most exciting things immediately ahead of us is to explore this planet. Every group of organisms is still open to exploration. If you want to discover new species, all you have to do is pay attention to organisms that are a fraction of an inch, say several millimeters long or less, and start studying them. In every section of this microscopic and submicroscopic world can be found different ecological niches allowing small insects, roundworms, protozoans, bacteria, and other tiny creatures to divide up the diversity so that they can live in a single square meter area by the thousands of species. A rotting stump in a forest seems an inconsequential object to us, but in fact to creatures as small as insects or smaller it can be the equivalent of an island like Puerto Rico. One can find organisms by the tens to hundreds of thousands, representing hundreds of species, in a place like this. A large percentage of them are outright unknown to science, that is, not even having a scientific name (that would be a small minority in most cases in Ohio). Wherever you go in the world, a vast majority of them are unstudied—we don't know what their life cycles are, what their biology is or anything.

They include oribatid mites. These small creatures look like a cross between a turtle and a spider. They spend their lives apparently feeding on—no one knows for sure—fungal spores and rotting debris. They are clearly a

major part of the ecosystem. About five years ago I undertook a study of very small ants that live in leaf litter around the world. There are hundreds of species of these tiny ants whose biology is completely unknown. I guessed that they might be feeding on mites because these creatures were present there in millions. The ants are not much larger than they are. We might have miniature lions and tigers and wolf packs represented by the ants, hunting through the litter and collecting these mites like antelopes and rabbits. Who knows? We didn't know; we didn't have any information. So I began the study and I soon discovered that this was indeed the case. There were ants that do hunt oribatid mites in particular. They pick them up like watermelons and cantaloupes out of the litter and they take them back to the nest and then pop them open and they feast on them. And that's how they make their living, at least in part, and the activity is clearly an important part of the energy cycle of the forest.

So, in order to find out about oribatid mites I looked around for an expert. I thought that surely there was all kind of expertise available to help me identify these mites and tell me about them. Quite the contrary: I found there is only one specialist in the entire United States working on oribatid mites full-time; that's Roy Norton at the University of Syracuse. Fortunately he is a very coopera-

tive scientist, and so we exchanged a lot of information. He was fascinated to know about the ants who feed on them. He said, "We know almost nothing about the predators." And I said, "Good, we know almost nothing about the food these ants eat." But we didn't get very far with this because there were only two of us, and we both had other things to do. I just give you this as an example of what needs to be done in ecology and systematics.

As part of the effort of biodiversity studies we have the extremely practical issue of finding out where the endangered species of plants and animals are. We need to get moving on this type of research, because this is the kind of information that will not only produce new scientific knowledge, but also provide the basis for future conservation programs. It will help guide future environmental legislation. It will also serve as the foundation of rational regional planning. We need increasingly to seek solutions satisfactory for both conservationists, whose precept is to save as much biodiversity as possible, and landowners and business, who must get on with managing their private property and in some cases developing it. Societies can arrive at such win-win strategies, I believe, but ultimately they will need the kind of scientific knowledge that only a few institutions, such as The Cleveland Museum of Natural History, can provide.